April 2020

ATTLEBORO LAND TRUST NEWS

A Monthly Newsletter on Outdoor Adventure and Conservation

In This Issue

Get Back to Nature during this Trying Time

In these days of social distancing, there is no better way to get needed exercise and calm our spirits than by taking a walk in the woods. Alone, or with a friend (at a comfortable distance), this is a perfect time to reconnect with nature. The beauty of spring flowers emerging while the sounds of wildlife abound can sooth one's soul in these challenging times.

There are many trails here in Attleboro and probably some that you have never tried. You can find some of them on the website of the Attleboro Land Trust: attleborolandtrust.org.

The Covid19 virus is a phenomenon of nature. It's occurrence is a reminder that we humans are part of a larger natural ecosystem that is constantly changing and evolving.

While we have the ability to manage the natural world in some ways — like arresting this virus — we also have done great damage to the natural world over the past centuries by polluting the waters and the air and by driving thousands of species of wildlife to extinction.

A regular walk in the woods can be a healthy reminder that we humans enjoy a great gift: a wonderfully hospitable world filled with resources and possibilities. But we must care for our world, and do it now, before it's too late. Roy Belcher

Upcoming Events

The Attleboro Land Trust and other organizations with which we partner need to suspend events and meetings for the foreseeable future due to the current state alert and requirements to provide for the safety of all our citizens. We will provide information on future events and meetings on Attleborolandtrust.org and upcoming newsletters. Our properties and trails remain open from dawn to dusk for individuals to utilize while they maintain "Social Distancing". Please respect our properties and report any problems you may find. Thank you for your understanding.

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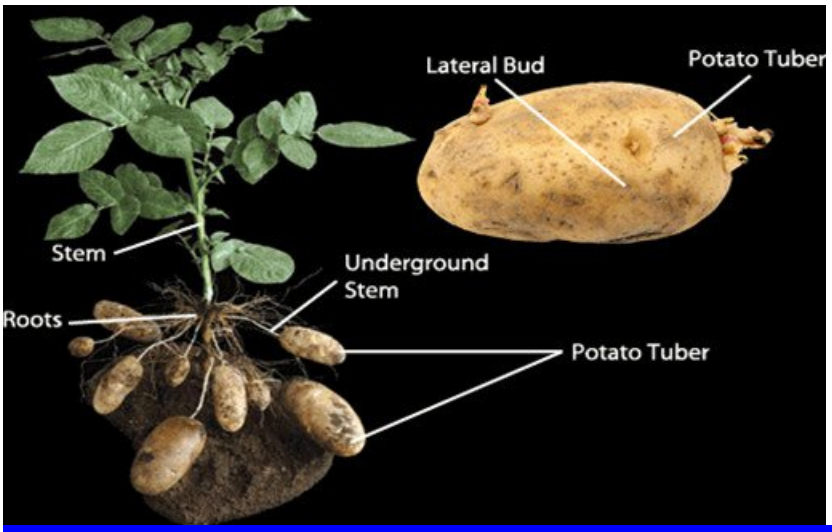
Why are there no Heirloom Potatoes? By: Emily and Jenna Gittle

Heirloom refers to the heritage of a certain type of seed or plant. Heirloom plants are plants that carry on the original genetics of their ancestors without added interventions that may alter the genetic composition of the plant, like cross-pollination. They cannot be any type of hybrid variety. Because heirloom potatoes stay true to the genetics of their ancestors, their lack of genetic tweaking keeps them from being resistant to harmful conditions or disease. In addition, if many of the potato plants that are planted share similar genetics, a disease could spread and wipe out huge amounts of potato crop, as during the Irish Potato Famine. Therefore, there are almost no heirloom potatoes. In the modern consumer world, corporations would rather have resistant hybrid varieties to yield more crop output thereby making more money. You can grow a few good heirloom potato varieties locally.

Potatoes are propagated differently than most plants. Potatoes naturally reproduce sexually via self-pollination growing their own seeds. In these seeds, genetic material is passed down via random distribution of the chromosomes, creating a blend of genetic material that differs from the original genetic composition of the potato. Heirloom potatoes must have uniformity in their genetics. What makes a plant heirloom is its ability to replicate its genetic material from its ancestors without any genetic intervention. Since genetic material varies when potatoes are propagated sexually via their natural seed, this propagation method does not allow for an heirloom plant.

Other ways to propagate a potato are vegetative (clonal) propagation and tissue culture. Vegetative propagation refers to “seed” as the tubers, or edible roots, of the potato that carry the potato’s identical genetic material. Tubers grow through little nodes around the outside of the potato, called eyes. After a period of dormancy when they are harvested, tubers begin growing sprouts from the eyes that can be harvested and replanted. They use the genetic material of the potatoes from which they grow. Vegetative propagation ensures the genetic material is identical to its parent plant because this process does not involve any interference from any other humans or plants. Tissue culture allows potatoes to grow rapidly from tissue samples of the vegetative parts of the plant, and is usually conducted in test tubes and greatly monitored. Both of these methods allow for the production of identical plants from samples of the exact genetics of the potato. When managing a potato plant, you can keep its heritage going by using these methods.



Proof read by Aleysa Larkin, Danielle Tsebetzis, Saria Noshahi & Josseline Carcamo Mendez

The Attleboro Land Trust is looking for Supporters by becoming a member, making a Tax-Deductible Contribution and/or as a Conservation Volunteer. Membership, contributions or volunteering can be done securely at Attleborolandtrust.org or by mail at Attleboro Land Trust, P .O. Box 453, Attleboro, MA 02703. Thank you for your support.

THE PERILS OF SONG BIRDS


Red-Winged Blackbird

Whether you are a knowledgeable bird watcher or not, observing birds always tells us something about the seasons. To see them working in high trees or lower shrubs, looking for food, they seem so carefree. Though alert, their antics of hopping and scratching is a pleasing sight. Their lives are a mixture of hard work, intuitive moves for breeding, raising a family and the constant vigilance of staying safe everyday. Being a busy bird is not easy or without its pitfalls.

A real sign of this is that our populations of native or migratory songbirds are on the decline. Some of the reasons are visible and easier to understand, but others are hidden and just as lethal to them. Calculations suggest that in the last twenty-five years, there has been about a 22% loss in bird populations in our Northeast flyway. That is a lot. That is approaching a quarter of what we used to see and enjoy. Perhaps not so stunning are a few of the reasons for these losses.

First, and maybe the easiest to understand, is habitat loss. Looking around, one can see how quickly fields and woodlands can be gobbled up with new construction and compromising bird habitat. There is more to this story, which I will cover in a later piece during the year. Other aspects are acid rain, sadly feral and domestic cats, and a large category of flyway obstacles that have been built in the pathways of migrating birds. Everything from wind turbines, tall glass and steel buildings, airplane traffic and towers with electronic gear has become unavoidable challenges for birds.

The effects of acid rain have taken a big toll on so many living elements of our local and regional environment. Acid rain, an old term, is real because we never fixed this problem. Through efforts of legislation and scientific studies, this problem was modified but not eliminated. Exhaust plumes from industrial production and automobiles and the use of certain pesticides have contaminated the rain with acid forming substances which are polluting the natural water cycle. This, in turn, alters what it falls on, from forest trees to the soil and water. The acid rain can interfere with the ecosystem to the extent that it alters food sources of birds and wildlife.

Cats are also a huge problem for birds. No one wants to think that their little Tabby is a problem but they do hunt. Feral cats are a much bigger problem since there is no one to feed or care for them so their hard-wired instincts for food take over. This can be devastating to any local bird population and the dynamic pyramid of a female feral cat shows how off balance this is for the birds. A single female can have three litters of kittens a year. Theoretically, if half her offspring are female in the course of seven years, cat “A” could have over 3800 offspring that could prowl the natural world. This of course is staggering but not an actual occurrence since the life of a feral cat is a very hard one for sure. Disease, predators, general poor health and the interactions with man and his machines takes its toll on the final numbers of this pyramid. Even with much lower numbers, all cats still eliminate far too many songbirds.

The problem of man made obstacles seems the easiest to alter in favor of the birds. Yet every year, thousands of birds still have a bad interaction with these structures as they struggle with avoidance. Someday there will be devices in place or jarring color changes that can give birds a warning about what is coming or show a new way to go. Sounds simple to fix but we are fighting their instincts and have no idea what they see or “think” while they are on their sojourns.

Happy and carefree, I guess I will hold that thought about birds, when working, as an environmentalist to influence the few things that I am able. Each part of this piece could easily “hatch” another essay or lengthy story about birds. This is hardly the complete story but rather an introduction of what birds have to contend with both in nature and while dueling with the hand of man. By recognizing the problems and doing our best to make changes, we can look forward to many sweet songs returning.

Phil Boucher

Updates, Comments, and Interesting Reading

The current administration EPA has suspended all pollution regulations and fines for the duration of the virus. This will lead to widespread dumping of pollutants as companies get rid of accumulated waste.

"Biomass ash", ash from burning biomass, a renewable energy source, can be used by putting it back into the soil as fertilizer or as cement to make bricks and mortar.

The International Union for Conservation of Nature has found that the increase in temperature of 1 degree C from 1960 to 2010 has decreased oxygen in the oceans by 2% overall and by up to 40% in tropical areas. This compounded with nutrient runoff has caused some areas to support only jellyfish and algae instead of fish, particularly larger fish such as tuna and swordfish.

The Great Barrier Reef is undergoing the third major bleaching event in five years. The same is happening in the Florida keys. Coral reefs are breeding places for many species of edible fish. Without the reefs our ocean fish stocks will be severely depleted. Bleaching is caused by the water getting warmer from global warming, getting colder, or getting more acidic from absorbing CO_2 from the air.

Finless Foods, Wild Type, and other start-ups are developing synthetic fish from fish stem cells to go in fish patties, sticks and chunks, while Shiok Meats is developing synthetic crustacean meat. The product is developed in granules and then assembled similar to 3D printing into the shapes required.

THE NATIONAL SECURITY, MILITARY, AND INTELLIGENCE PANEL ON CLIMATE CHANGE (NSMIP) released a report A SECURITY THREAT ASSESSMENT OF GLOBAL CLIMATE CHANGE or HOW LIKELY WARMING SCENARIOS INDICATE A CATASTROPHIC SECURITY FUTURE in which they reported that climate change will prevent our country from being protected in a war scenario.

According to InsideClimate News, Norfolk Naval Shipyard, one of the largest naval bases in the world, has sustained nine flooding events in the past decade from climate change, causing massive amounts of damage, and they are getting worse.

Environmental Working Group's Children's Health Initiative found that 21 of General Mills' oat-based cereals and snacks were contaminated with glyphosate, the main ingredient in Roundup.

FoxBusiness

Attleboro Community Garden

The Attleboro Community Garden has delayed the Formal Grand Opening because of the current health situation. Gardeners are allowed to start their plots using the strict guidelines they have been provided. Food production is allowed under the state's essential services restrictions. They will maintain "Social Distancing" and take other precautions including limiting the number of gardeners that can be in the Garden to a maximum of 10 and not providing shared resources. This is being done to minimize exposure to the virus. As the situation evolves updates will be provided to gardeners.

Our Wetlands: Their Importance

A wetland is a land area that has surface water all or part of the year and the land area surrounding it. This can include swamps, marshes, flood plains, intermittent streams, riverbanks, vernal pools, beaches, and other areas that periodically have water. In Massachusetts, there is a "buffer zone" of 100 feet around a wetland, 200 feet from a river resource area, and 25 feet from an urban river. The purpose of the buffer zone is to protect the plants and wildlife in the wetland, allow for expansion during flooding events, and protect terrestrial wildlife that use the wetlands.

Why are the wetlands important? We have lost over half of our original wetlands to residential, agricultural and commercial development. This has caused a loss of water quality, reduction of water volume, reduction of flood control, and loss of plants, animals, and fish that depend on the wetlands. We need wetlands not only to preserve our quality of life but our very existence.

This reduction in wetlands is causing us to have less water because wetland water bodies slowly replenish the groundwater, which then feeds our streams, rivers, and reservoirs. But without sufficient wetlands, rainwater cannot be absorbed quickly enough and carries way valuable soil and pollutants into rivers and bays. The wetlands also act as a filtration system as the water percolates into the groundwater aquifer. The plants' roots, stems and leaves in the wetlands and particularly in the buffer zone absorb toxins, heavy metals, pesticides, and excess nitrogen and phosphorus from fertilizer. This helps keep them from getting into our water supply, thereby requiring less water purification and protecting us from their harmful effects. The bacteria in the soil under the wetlands concentrate and sequester iron, copper, and lead preventing it from contaminating our water supply.

We now have a problem with EEE and West Nile being carried by mosquitoes. Nature had a solution for that with the wetlands. Mosquitoes laid their eggs and their larva grew in the wetlands. Amphibians such as frogs and salamanders, reptiles like toads, and aquatic life like fairy shrimp and fish would eat them keeping the populations down. Now we end up spraying to kill them, which also kills the beneficial wildlife that were there to protect us in the first place.

The plants and structure of wetlands also buffers the flow of water during flood events preventing erosion and damage, while the trees in these areas block the wind during storms minimizing damage to communities.

If our remaining wetlands are not preserved, we can expect increased health problems, water shortages, flood damage to our homes and businesses, and loss of wildlife. Shouldn't we all be promoting wetlands?

Plastics: A Boon or Our Destruction


Your beach?

In the 1967 film "The Graduate", Ben is told by Mr. McGuire, "The future is in Plastics." Well we are in the future and plastics has been a boon in so many areas but now it has also become a calamity. Each of us is now ingesting about the amount of plastic in a credit card every week from the air we breathe, liquids we drink, and food we eat, and much of this plastic has chemicals attached that cause developmental and hormonal abnormalities, circulatory problems, digestive problems, and cancer.

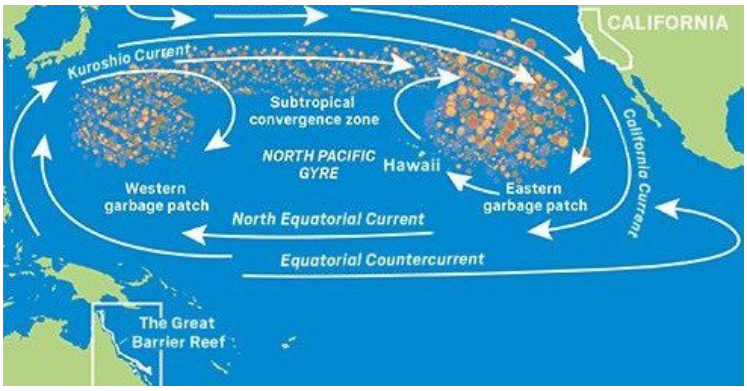
Sen. Tom Udall (D) of New Mexico is promoting the "Break Free from Plastic Pollution Act of 2020" to make the producers of plastics and manufacturers of plastic products take responsibility for all the plastic waste. It is a big fight against the Plastics Industry but they should clean up their own mess. Let's look at some plastics facts:

Studies show that with every bottle of water or other drink we ingest an average of 93 microplastic particles per liter. Tap water may have some but far less.

Only 9% of the plastics produced ever get recycled. 40% of all plastics are one use. No thermosetting plastics can be recycled. Plastics with food residue cannot be recycled.

Biodegradable plastics will only biodegrade if they go through a special factory that grinds them up and subjects them specific temperature and humidity.

Large plastic garbage patches are in all our oceans polluting our seafood. As countries refuse our waste, it is being dumped in the oceans.



Plastics in farming for greenhouses or weed suppressors on fields contain phthalates, which are endocrine disrupting chemicals (EDC) linked to behavior problems, high blood pressure and obesity. These get transferred to the vegetables.

Another EDC is BPA, which has been removed in baby and some water bottles, but it is still in the plastic lining of metal cans, plastic containers, and food wrappers.

A German study in PLOS One, showed that the EDC's in water bottles reduced estrogen receptor activity by 40% and testosterone receptor activity by 90% adversely affecting reproduction and development. Testosterone is needed for muscle development.

Nano-plastics are now being absorbed into the leaves and other parts of our vegetables and into the meat of shellfish and seafood. These nano particles can get into our blood.

We've reported earlier about uses of old plastic such as compressed bricks and blocks and long life road paving. Now, the French company Carbios has developed an enzymatic process to recycle ALL plastics into a renewable plastic base material for food containers.


Waste power plant

Scientists have developed methods to convert plastics into jet or diesel fuel, aerogels for liquid and air filters, sponges to absorb oil spills, and high strength carbon nanotubes. In many areas, non-recyclable plastics are used to produce energy to power homes.

We need to dispose effectively of ALL waste plastic before it overwhelms us.

What's Happening on the Barrows' Farm in 1720?

Winter has gone and spring is here. The heavy work season has started but it is still too cold for planting as there is still danger of a "killing" frost. The ashes from the fires, that weren't used to make lye for soap making, are being spread on the "kitchen garden". The dark color absorbs the heat from the sun, warming the soil and allowing earlier planting, plus the minerals in the ashes supplement the soil. The crops from this garden will help feed them until the main crops can be harvested. These will be fast growing plants: greens such as lettuce and spinach, roots like carrots, beets, and turnips, plus beans, cucumbers and summer squash. The annual "rock harvest" (see June newsletter) is ongoing, as the soil can not be plowed yet.


Metzer Farm

As fresh plant shoots are coming available, the animals are birthing their young and the chickens, ducks, and geese are laying eggs. They keep the tips of the flight feathers of one wing clipped so they can't fly away. The young have to be monitored and protected to prevent loss from weather and predators. Milk is back on the menu so butter and cheese is made from the excess. Butter churns, with straight sides, are easier to make than casks and provide good training for the apprentices.

The children, when not watching the animals, are out collecting dandelion and plantain greens, fern fiddleheads, and other new growth to add to the pot. They also dig for roots. They will hunt for animals that were active all winter, but animals that are coming out of hibernation are too lean to provide any real meat as they have depleted their meat and fat stores during the winter. They also watch the brook for the spring herring run. It is used for both food and fertilizer. They can be scooped out at the dam. They open a spillway at night so some of the herring can get to the ponds to spawn, providing for a catch for the next year.

Massachusetts Global Warming Solutions Act

In 2008 Massachusetts implemented the Global Warming Solutions Act (GWSA) as one of the first states to fight global warming. This required the state to reduce global warming gasses by 25% by 2020 and 80% by 2050 from 1990 levels from all sectors of the economy. How are we doing?

The 10 year report in 2018 states that Massachusetts has reduced GHG emissions by 22.4% so far. Hopefully we will reach the 25% mark by the 2020 report. Last spring the EEA started the planning process for the "2050 Roadmap" to reach at least 80% emissions reduction by 2050.

EVP ENVIRONMENTAL VOTER PROJECT

The **Environmental Voter Project** is a volunteer organization that is working to get more environment and conservation conscious people out to vote. Through this program, these people are encouraged to vote and environmental priorities are put into the consciousness of politicians who want their votes. The EVP is currently looking for volunteer interns in Boston, for 12 weeks, to become part of this program. If you are interested: www.environmentalvoter.org/jobs/intern.

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